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## A new species of *Neboissoperla* MCLELLAN from alpine New South Wales, Australia (Plecoptera: Gripopterygidae)

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**A b s t r a c t :** Adult and larva of *Neboissoperla spinulata* sp.n. ( $\delta$  holotype: Cascade Creek, tributary of Bogong Creek, New South Wales, Australia) are described, illustrated and compared with the previously described species of *Neboissoperla* MCLELLAN.

**K e y   w o r d s :** *Neboissoperla*, new species, Australia.

### Introduction

Starting to establish a comprehensive voucher collection of aquatic macro-invertebrates at EPA (Environment Protection Authority) New South Wales in 1997, I encountered larvae, apparently of *Neboissoperla* but very different from previously available material and descriptions of that genus. These larvae (collected from Cascade Creek in alpine New South Wales) have markedly longer antennae and cerci than *N. alpina* MCLELLAN, and on abdominal segments 1-9 there are small but quite distinct pointed mid-dorsal elevations, particulars not mentioned in descriptions or treatments of the larvae of *N. alpina* (MCLELLAN 1974, HYNES 1978, YULE 1997). Planned searches for adults belonging to the spiny *Neboissoperla* larvae did not eventuate for several years. In January 2002, however, I was finally able to visit Cascade Creek and to collect there a spiny final instar larva and a number of spiny final instar exuviae of *Neboissoperla* together with apparently conspecific adults. The adults are similar to *N. alpina* but markedly stouter and micropterous, and they apparently agree with a short-winged specimen HYNES (1974) recorded, under *N. alpina*, from a small stream near Guthega Dam on Mt Kosciusko (also a locality in alpine New South Wales). As they are not only different from *N. alpina* in body/wing proportions but also in the male genitalia, particularly the shape of the epiproct and paraprocts, they are considered to belong to a different species which is described as new below.

### Description

#### *Neboissoperla spinulata* spec. nov. (Figs 1-4)

**M a t e r i a l   e x a m i n e d :** Holotype  $\delta$ , New South Wales, Cascade Ck, tributary of Bogong Ck, 1300 m, 26. and 27.2.2002, G. Theischinger (ANIC). Paratypes: 7 $\delta$   $\delta$ , 1 $\varphi$ , 1 last instar larva, 9 last instar exuviae, same data as holotype (ANIC); 2 last instar larvae, NSW EPA survey MRHI,

MURR28, Cascade Ck (148°15'49"E/36°15'53"S), 19.11.1994, Frances Laurenson, and 3 last instar larvae, same survey and locality, 24.11.1995, Nadia Meucci (ANIC and voucher collection of EPA New South Wales). The specimen HYNES (1974) recorded from Guthega Dam on Mt Kosciusko (as mentioned above) appears to belong here but was not found. 1♂, 1♀, Victoria, Falls Creek, Bogong High Plains, 26.1.1960, A. Neboiss (MV), differing slightly from the type material, are possibly of the same species. (ANIC = Australian National Insect Collection, CSIRO, Canberra; MV = Museum Victoria, Melbourne).

N a m e : *spinulatus* 3 = Latin for "with small spines".

A d u l t (Figs 1, 2)

D i m e n s i o n s : Body length, male 9.5-10.5 mm, female 9.5 mm; wing length, male 7.5-8.0 mm, female 9.5 mm.

C o l o u r a t i o n : Head brownish yellow with patches of dark brown. Thorax pale greyish brown with patches of dark greyish brown. Femora pale to dark brownish grey except for light tip; tibiae greyish yellow except for almost black basal ring. Forewing brownish grey with light patches, generally between the cross-veins; hindwing more uniformly grey. Abdomen rather uniformly greyish brown in male, yellowish grey in female.

M a l e g e n i t a l i a : Membranous central sclerite of tergum X large. Epiproct with the two terminal spurs subequal in size and shape and with deep v-shaped notch between them (Fig. 1). Paraprocts with distinct, almost pointed lateral joint between stout, sclerotised base (Fig. 2) and sclerotised support (consisting of a distally widened, basal lobe and a dorsal lobe) of bulged scoop-like inner part. Cerci with rather long basal segment and dorsal projections of moderate size on next 4 segments. Subgenital plate small, subcircular.

F e m a l e g e n i t a l i a : Subgenital plate not produced. Subanal lobes short with broad base.

L a r v a (Figs 3, 4)

Body length approximately 8.5 mm; antennae at least as long as body, cerci about 20% longer than body. Colouration largely greyish yellow with small and larger pattern elements of greyish brown; head markedly darker, antennae, legs and cerci markedly paler than the rest; a distinct yellow mark each at the bases of the wing-pads and at about the middle of the forewing-pad. Abdominal terga 1-9 each drawn out postero-medially into a distinct cone, which makes the abdomen appear spinulate (Figs 3, 4).

For comparison *Neboissoperla alpina* adults (Figs 5, 6) and larvae were examined from Cement Creek, Godfreys Creek, Mt BawBaw, Mt Donna Buang (2300 and 3400 ft), Mount Wellington and Wilks Creek, all localities in Victoria.

## Discussion

*Neboissoperla spinulata* is most probably the sister species of *N. alpina*. The adults can be distinguished from *N. alpina* (MCLELLAN 1971, Fig. 31; THEISCHINGER & CARDALE 1987, Figs 405-408; present paper, Figs 5, 6) by the short wings which do not cover the end of the abdomen in male and by the claw-shaped epiproct (Fig. 1) and the stout base of the male paraprocts (Fig. 2). The larvae of *N. spinulata* have abdominal terga 1-9 postero-medially produced into distinctly pointed cones (Figs 3, 4), a character not

known from other *Neboissoperla* species (MC LELLAN 1971, Fig. 32; HYNES 1982, 1989, Fig. 50).

The epiproct of *N. monteithi*, a species known only from the Barrington Tops area and from Mt Kaputar in New South Wales, is very similar to that of *N. alpina*, but its paraprocts are less elaborate (THEISCHINGER 1982, Fig. 18; THEISCHINGER & CARDALE 1987, Figs 409-411).

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### Zusammenfassung

Imago und Larve von *Neboissoperla spinulata* sp. n. von New South Wales, Australien, werden beschrieben. Das Männchen kann in der Form des Epiproct und der Paraprocte, die Larve durch abdominale Dorsalkegelchen, von allen beschriebenen *Neboissoperla* Arten unterschieden werden.

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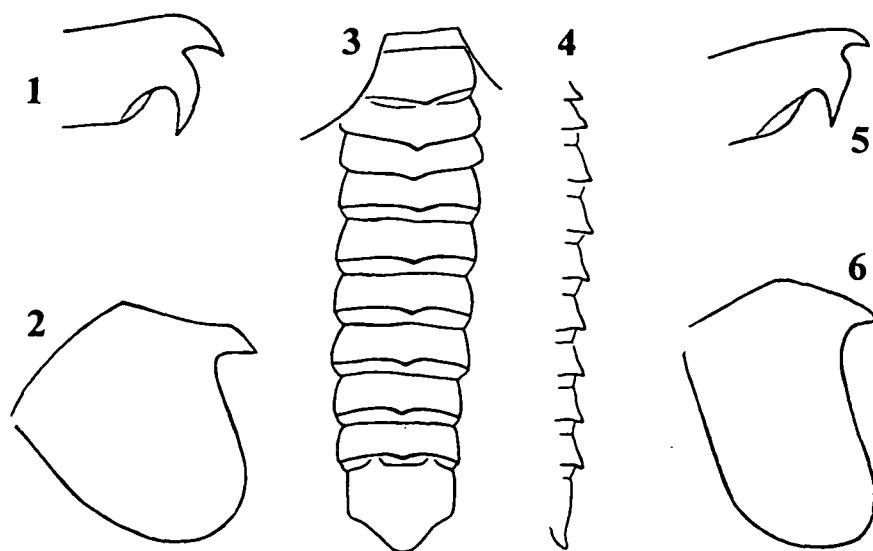
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Figs 1-4: *Neboissoperla spinulata* sp.n.: (1, 2) male genitalia, lateral aspect: (1) tip of epiproct; (2) base of left paraproct; (3, 4) larval abdomen: (3) dorsal aspect; (4) dorsal profile. Figs 5, 6: *Neboissoperla alpina* MCLELLAN, male genitalia, lateral aspect: (5) tip of epiproct; (6) base of left paraproct.